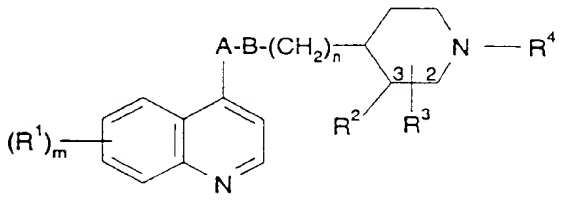
Claims

1. A method of treatment of bacterial infections in mammals, particularly in man, which method comprises the administration to a mammal in need of such treatment of an effective amount of a quinoline of formula (I) or a pharmaceutically acceptable derivative thereof:



(I)

wherein:

m is 1 or 2

each R^1 is independently hydroxy; (C_{1-6}) alkoxy optionally substituted by (C_{1-6})alkoxy, amino, piperidyl, guanidino or amidino optionally N-substituted by one or two (C_{1-6})alkyl, acyl or (C_{1-6})alkylsulphonyl groups, NH_2CO, hydroxy, thiol, (C_{1-6})alkylthio, heterocyclylthio, heterocyclyloxy, arylthio, aryloxy, acylthio, acyloxy or (C_{1-6})alkylsulphonyloxy; (C_{1-6})alkoxy-substituted (C_{1-6})alkyl; halogen; (C_{1-6})alkyl; (C_{1-6})alkylthio; nitro; azido; acyl; acyloxy; acylthio; (C_{1-6})alkylsulphonyl; (C_{1-6})alkylsulphoxide; arylsulphonyl; arylsulphoxide or an amino, piperidyl, guanidino or amidino group optionally N-substituted by one or two (C_{1-6})alkyl, acyl or (C_{1-6})alkylsulphonyl groups;

either R^2 is hydrogen; and

R^3 is in the 2- or 3-position and is hydrogen or (C_{1-6})alkyl or (C_{2-6})alkenyl optionally substituted with 1 to 3 groups selected from:

thiol; halogen; (C_{1-6})alkylthio; trifluoromethyl; azido; (C_{1-6})alkoxycarbonyl; (C_{1-6})alkylcarbonyl; (C_{2-6})alkenyloxycarbonyl; (C_{2-6})alkenylcarbonyl; hydroxy optionally substituted by (C_{1-6})alkyl, (C_{2-6})alkenyl, (C_{1-6})alkoxycarbonyl, (C_{1-6})alkylcarbonyl, (C_{2-6})alkenyloxycarbonyl, (C_{2-6})alkenylcarbonyl or aminocarbonyl wherein the amino group is optionally substituted by (C_{1-6})alkyl, (C_{2-6})alkenyl, (C_{1-6})alkylcarbonyl or (C_{2-6})alkenylcarbonyl; amino optionally mono- or disubstituted by (C_{1-6})alkoxycarbonyl, (C_{1-6})alkylcarbonyl, (C_{2-6})alkenyloxycarbonyl, (C_{2-6})alkenylcarbonyl, (C_{1-6})alkyl, (C_{2-6})alkenyl, (C_{1-6})alkylsulphonyl, (C_{2-6})alkenylsulphonyl or aminocarbonyl wherein the amino group is optionally substituted by (C_{1-6})alkyl or (C_{2-6})alkenyl; aminocarbonyl wherein the amino group is optionally substituted by (C_{1-6})alkyl, hydroxy(C_{1-6})alkyl, aminocarbonyl(C_{1-6})alkyl, (C_{2-}

6)alkenyl, (C_{1-6})alkoxycarbonyl, (C_{1-6})alkylcarbonyl, (C_{2-6})alkenyloxycarbonyl or (C_{2-6})alkenylcarbonyl and optionally further substituted by (C_{1-6})alkyl, hydroxy(C_{1-6})alkyl, aminocarbonyl(C_{1-6})alkyl or (C_{2-6})alkenyl; oxo; (C_{1-6})alkylsulphonyl; (C_{2-6})alkenylsulphonyl; or aminosulphonyl wherein the amino group is optionally substituted by (C_{1-6})alkyl or (C_{2-6})alkenyl; or

R^3 is in the 3-position and R^2 and R^3 together are a divalent residue $=CR^{5'}R^{6'}$ where $R^{5'}$ and $R^{6'}$ are independently selected from H, (C_{1-6})alkyl, (C_{2-6})alkenyl, aryl(C_{1-6})alkyl and aryl(C_{2-6})alkenyl, any alkyl or alkenyl moiety being optionally substituted by 1 to 3 groups selected from those listed above for substituents on R^3;

R^4 is a group $-CH_2-R^5$ in which R^5 is selected from:

(C_{3-12})alkyl; hydroxy(C_{3-12})alkyl; (C_{1-12})alkoxy(C_{3-12})alkyl; (C_{1-12})alkanoyloxy(C_{3-12})alkyl; (C_{3-6})cycloalkyl(C_{3-12})alkyl; hydroxy-, (C_{1-12})alkoxy- or (C_{1-12})alkanoyloxy-(C_{3-6})cycloalkyl(C_{3-12})alkyl; cyano(C_{3-12})alkyl; (C_{2-12})alkenyl; (C_{2-12})alkynyl; tetrahydrofuryl; mono- or di-(C_{1-12})alkylamino(C_{3-12})alkyl; acylamino(C_{3-12})alkyl; (C_{1-12})alkyl- or acyl-aminocarbonyl(C_{3-12})alkyl; mono- or di-(C_{1-12})alkylamino(hydroxy) (C_{3-12})alkyl; optionally substituted phenyl(C_{1-2})alkyl, phenoxy(C_{1-2})alkyl or phenyl(hydroxy)(C_{1-2})alkyl; optionally substituted diphenyl(C_{1-2})alkyl; optionally substituted phenyl(C_{2-3})alkenyl; optionally substituted benzoyl or benzoylmethyl; optionally substituted heteroaryl(C_{1-2})alkyl;and optionally substituted heteroaroyl or heteroaroylmethyl;

n is 0, 1 or 2;

A is NR^{11}, O, $S(O)_x$ or CR^6R^7 and B is NR^{11}, O, $S(O)_x$ or CR^8R^9 where x is 0, 1 or 2 and wherein:

each of R^6 and R^7 R^8 and R^9 is independently selected from: H; thiol; (C_{1-6})alkylthio; halo; trifluoromethyl; azido; (C_{1-6})alkyl; (C_{2-6})alkenyl; (C_{1-6})alkoxycarbonyl; (C_{1-6})alkylcarbonyl; (C_{2-6})alkenyloxycarbonyl; (C_{2-6})alkenylcarbonyl; hydroxy, amino or aminocarbonyl optionally substituted as for corresponding substituents in R^3; (C_{1-6})alkylsulphonyl; (C_{2-6})alkenylsulphonyl; or (C_{1-6})aminosulphonyl wherein the amino group is optionally substituted by (C_{1-6})alkyl or (C_{1-6})alkenyl;

or R^6 and R^8 together represent a bond and R^7 and R^9 are as above defined;

or R^6 and R^8 together represent –O- and R^7 and R^9 are both hydrogen;

or R^6 and R^7 or R^8 and R^9 together represent oxo;

and each R^{11} is independently H, trifluoromethyl, (C_{1-6})alkyl, (C_{1-6})alkenyl, (C_{1-6})alkoxycarbonyl, (C_{1-6})alkylcarbonyl, aminocarbonyl wherein the amino group is optionally substituted by (C_{1-6})alkoxycarbonyl, (C_{1-6})alkylcarbonyl, (C_{1-}

6)alkenyloxycarbonyl, (C_{2-6})alkenylcarbonyl, (C_{1-6})alkyl or (C_{1-6})alkenyl and optionally further substituted by (C_{1-6})alkyl or (C_{1-6})alkenyl;

provided that A and B cannot both be selected from NR^{11}, O and $S(O)_x$ and when one of A and B is CO the other is not CO, O or $S(O)_x$.

2. A compound of formula (IA) which is a compound of formula (I) wherein R^3 is hydroxy(C_{1-6})alkyl or 1,2-dihydroxy(C_{2-6})alkyl optionally substituted on the hydroxy group(s).

3. A compound of formula (IB) which is a compound of formula (I) wherein at least one R^1 is (C_{2-6}) alkoxy substituted by optionally N-substituted amino, guanidino or amidino or C_{1-6} alkoxy substituted by piperidyl, A is CH_2, CHOH, $CH(NH_3)$, C(Me)(OH) or CH(Me) and B is CH_2, CHOH or CO.

4. A method according to claim 1 wherein R^1 is in the 6-position on the quinoline nucleus and is methoxy, amino(C_{3-5})alkyloxy, nitro or fluoro and m is 1.

5. A method according to claim 1 or 4 wherein R^3 is (C_{1-6}) alkyl, (C_{1-6}) alkenyl, optionally substituted 1-hydroxy-(C_{1-6}) alkyl

6. A method according to claim 5 wherein R^3 is hydroxymethyl, 1- hydroxyethylor 1,2-dihydroxyethyl wherein the 2-hydroxy group is optionally substituted with alkylcarbonyl or aminocarbonyl where the amino group is optionally substituted.

7. A method according to any one of claims 1 and 4 to 6 wherein R3 is in the 3-position.

8. A method according to any one of claims 1 and 4 to 7 wherein A is NH, NCH_3, O, CH_2, CHOH, $CH(NH_3)$, C(Me)(OH) or CH(Me) and B is CH_2, CHOH, CO or S or A is CR^6R^7 and B CR^8R^9 and R^6 and R^8 together represent –O- and R^7 and R^9 are both hydrogen, and n is 0 or 1.

9. A method according to claim 8 wherein:

A is NH, B is CO and n is 1 or 0;

A is O, B is CH_2 and n is 1 or 0;

A is CH_2 or CH_2OH, B is CH_2, and n is 1 or 0;

A is NCH_3, $CH(NH_3)$, C(Me)(OH) or CH(Me), B is CH_2 and n is 1

A is CR^6R^7 and B CR^8R^9 and R^6 and R^8 together represent –O- and R^7 and R^9 are both hydrogen and n is 1.

10. A method according to any one of claims 1 and 4 to 9 wherein R^4 is (C_{5-10})alkyl, unsubstituted phenyl(C_{2-3})alkyl or unsubstituted phenyl(C_{3-4})alkenyl.

11. A method according to any one of claims 1 and 4 to 10 wherein R^5 is unbranched at the α and, where appropriate, β positions.

12. A compound of formula (I) as defined in claim 1 selected from:

[3R,4R]-3-Ethyl-1-hexyl-4-[3-oxo-3-(6-methoxyquinolin-4-yl)propyl]piperidine;

[3R,4R]-3-Ethyl-1-hexyl-4-[3-(R,S)-hydroxy-3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R] 3-Ethyl-1-heptyl-4-[3-oxo-3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethyl-1-heptyl-4-[3-(R,S)-hydroxy-3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R] 3-Ethyl-1-octyl-4-[3-oxo-3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethyl-1-octyl-4-[3-(R,S)-hydroxy-3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethyl-1-decyl-4-[3-oxo-3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethyl-1-decyl-4-[3-(R,S)-hydroxy-3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethyl-1-dodecyl-4-[3-oxo-3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R] 3-Ethyl-1-dodecyl-4-[3-(R,S)-hydroxy-3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethyl-1-cinnamyl-4-[3-(R,S)-hydroxy-3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethyl-1-heptyl-4-[3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethenyl-1-heptyl-4-[3-(R,S)-hydroxy-3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethyl-1-heptyl-4-[3-(R,S)-hydroxy-3-(6-hydroxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-1-Heptyl-3-(2-hydroxyethyl)-4-[3-(R,S)-hydroxy-3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethyl-1-heptyl-4-[3-(R,S)-hydroxy-3-(6-[5-phthalimidopentyloxy]-quinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethyl-1-heptyl-4-[3-(R,S)-hydroxy-3-(6-[5-aminopentyloxy]-quinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethyl-1-heptyl-4-[3-(R,S)-hydroxy-3-(6-[2-Amino-2-oxo-1,1-dimethyl]ethoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethyl-1-heptyl-4-[3-(R,S)-hydroxy-3-(6-[2-hydroxy-2-methyl-propionamido]quinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethyl-1-heptyl-4-[3-(R,S)-hydroxy-3-(6-aminoquinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethyl-1-heptyl-4-[3-(R,S)-hydroxy-3-(6-azidoquinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethyl-1-heptyl-4-[3-(6-hydroxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethyl-1-heptyl-4-[3-(6-propyloxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethyl-1-heptyl-4-[3-(6-(5-Phthalimidopentyloxy)-quinolin-4-yl)propyl]piperidine;

[3R,4R]-3-Ethyl-1-heptyl-4-[3-(6-(5-aminopentyloxy)-quinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethenyl-1-(2-*t*-butyloxycarbonylaminoethyl)-4-[3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethenyl-1-(2-phenoxyethyl)-4-[3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethyl-1-(4-ethylbenzyl)-4-[3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3S,4R]-3-Ethenyl-1-heptyl-4-[3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethenyl-1-heptyl-4-[3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-1-Heptyl-3-(2-hydroxyethyl)-4-[3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-1-Heptyl-3-(2-acetoxyethyl)-4-[3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-1-Heptyl-3-(3-hydroxypropyl)-4-[3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-1-Heptyl-3-(1-hydroxyethyl)-4-[3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethyl-1-(2-phenylethyl)-4-[3-(R,S)-hydroxy-3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethyl-1-(3-phenylpropyl)-4-[3-(R,S)-hydroxy-3-(6-methoxyquinolin-4-yl)propyl]piperidine;
Heptyl-4-[2-(R,S)-hydroxy-3-(6-methoxyquinolin-4-yl)propyl]piperidine;
1-Heptyl-4-[3-(6-methoxyquinolin-4-yl)prop-2-enyl]piperidine;
1-Heptyl-4-[3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethyl-1-heptyl-4-[3-(R,S)-hydroxy-3-(6-methoxyquinolin-4-yl)butyl]piperidine;
[3R,4R]-3-Ethenyl-1-heptyl-4-[3-(R,S)-azido-3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethenyl-1-heptyl-4-[3-(R,S)-amino-3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethyl-1-heptyl-4-(3-(R,S)-amino-3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethyl-1-heptyl-4-[3-(6-methoxyquinolin-4-yl)butyl]piperidine;
[3R,4R]-3-Ethenyl-1-heptyl-4-(3-(R,S)-acetamido-3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-1-Heptyl-3-(2-(R,S)-Hydroxypropyl)-4-[3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-1-Heptyl-3-(1-(R,S),2-dihydroxyethyl)-4-[3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-1-Heptyl-3-aminocarbonyloxyethyl-4-[3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethyloxycarbonylaminocarbonyloxyethyl-1-heptyl-4-[3-(6-methoxyquinolin-4-yl)propyl]piperidine;

[3R,4R]-3-(1-(R,S)-2-Dihydroxyethyl)-1-heptyl-4-[3-(R,S)-hydroxy-3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3*R*, 4*R*]-3-Ethyl-1-heptyl-4-[(6-methoxyquinolinyl-4-oxy)methyl]piperidine;
[3R,4S]-3-Ethenyl-1-heptyl-4-[2-(6-methoxyquinolin-4-yl)-oxyethyl]piperidine;
1-Heptyl-4-[(6-methoxyquinolin-4-yl)oxymethyl]piperidine;
[3R,4R]-3-Ethyl-1-heptyl-4-[(6-methoxyquinolin-4-yl)methylthiomethyl]piperidine;
[3R,4R]-1-Heptyl-3-ethenyl-4-[{(6-methoxyquinoline-4-yl)carbonylamino}methyl]piperidine;
[3R,4R]-3-Ethenyl-1-heptyl-piperidine-4-[N-(6-methoxyquinolin-4-yl)]propionamide;
[3R,4R]-3-Ethenyl-1-heptyl-piperidine-4-[N-(6-methoxyquinolin-4-yl)]propylamine;
[3R,4S]-3-Ethenyl-1-heptyl-piperidine-4-[N-(6-methoxyquinolin-4-yl)]acetamide;
[3R,4R]-3-Ethenyl-1-heptyl-piperidine-4-[N-(6-methoxyquinolin-4-yl)]ethylamine;
[3R,4S]-3-Ethenyl-1-heptyl-4-[2-(R,S)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]piperidine;
[3R,4R]-3-Ethenyl-1-heptyl-4-[2-(6-methoxyquinolin-4-yl)ethyl]piperidine;
[3R,4R]-3-Ethyl-1-heptyl-4-[2-(6-methoxyquinolin-4-yl)ethyl]piperidine;
1-Heptyl-4-[2(*R,S*)-hydroxy-2-(6-methoxy-4-quinolinyl)ethyl]-piperidine;
[3S,4R]-3-Ethenyl-1-heptyl-4-[2-(6-methoxyquinolin-4-yl)ethyl]piperidine;
N-(6-Methoxy-4-quinolinyl)-1-heptyl-4-piperidinecarboxamide;
(3*Z*)-(4*R*)-3-Ethylidene-1-heptyl-4-[3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4S] -1-Cinnamyl-4-[2-(6-methoxyquinolin-4-yl)-oxyethyl]piperidine;
[3R,4R]-3-(2-Acetoxyethyl)-1-heptyl-4-[3-(6-methoxy-quinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethyl-1-heptyl-4-[3-(6-{2-hydroxyethyloxy}quinolin-4-yl)propyl]piperidine;
[3R,4R]-3-(Ethylaminocarbonyloxyethyl)-1-heptyl-4-[3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethenyl-1-heptyl-4-[3-(R,S)-aminocarbonylamino-3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R,4R]-3-Ethyl-1-heptyl-4-[3-(6-(4-aminobutyloxy)-quinolin-4-yl)propyl]piperidine;
[3R, 4R]-1-Heptyl-3-(1-(R)- and 1-(S)-hydroxy-2-methoxyethyl)-4-[3-(6-methoxyquinolin-4-yl) propyl] piperidine;
[3R, 4R]-1-Heptyl-3-(1-(R)- and 1-(S)-hydroxy-2-methylthioethyl)-4-[3-(6-methoxyquinolin-4-yl) propyl]piperidine;
[3R, 4R]-1-(5-Methylhexyl)-3-(1-(R)- and 1-(S)-2-dihydroxyethyl)-4-[3-(6-methoxyquinolin-4-yl)propyl]piperidine;
[3R, 4R]-3-Ethyl-1-heptyl-4-[3-(6-(3-aminopropyl)oxyquinolin-4-yl) propyl]piperidine;
[3R, 4R]-3-Ethyl-1-heptyl-4-[3-(6-(2-aminoethyl)oxyquinolin-4-yl) propyl]piperidine;

[3R,4R]-3-Ethyl-1-heptyl-4-[3-(6-(3-guanidinopropyl)oxyquinolin-4-yl) propyl] piperidine;

[3R, 4R]-3-Ethyl-1-heptyl-4-[3-(6-(piperidine-4-yl) methoxyquinolin-4-yl) propyl]piperidine;

[3R, 4S]-1-Heptyl-3-vinyl-4-[3-(6-methoxyquinolin-4-yl)-(R,R)-oxiran-2-ylmethyl]piperidine;

[3R, 4S]-1-Heptyl-4-[(2S)-hydroxy-3-(6-methoxyquinolin-4-yl)propyl]-3-vinylpiperidine;

[3R, 4S]-1-Heptyl-3–vinyl-4-[3-(6-methoxyquinolin-4-yl)-(S,S)-oxiran-2-yl-methyl]piperidine;

[3R, 4S]-3-Ethyl-1-heptyl-4-[2-(S)-hydroxy-3-(6-methoxyquinolin-4-yl)propyl]piperidine;

[3R, 4S]-1-Heptyl-4-[N-methyl-N-(6-methoxyquinolin-4-yl)aminoethyl]-3-vinylpiperidine;

[3R,4R]-1-Heptyl-3-(1-(R,S)-hydroxyethyl)-4-[3-(6-methoxyquinolin-4-yl)propyl]piperidine;

[3R,4R]-1-Heptyl-3-(1-(R,S)-hydroxy-1-methylethyl)-4-[3-(6-methoxyquinolin-4-yl)propyl]piperidine;

[3R,4R]-1-Heptyl-3-hydroxymethyl-4-[3-(6-methoxyquinolin-4-yl)propyl]piperidine;

[3R,4R]-1-(6-Methylheptyl)-3-(1-(R) and 1-(S),2-dihydroxyethyl)-4-[3-(6-methoxyquinolin-4-yl)propyl]piperidine;

[3R, 4S]-1-Heptyl-4-[(2S)-hydroxy-3-(6-methoxyquinolin-4-yl)propyl]-3-(2-hydroxyethyl)piperidine;

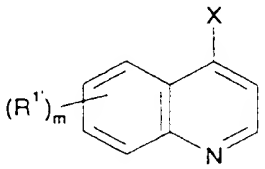
[3R, 4S]-1-Heptyl-3-aminocarbonyloxymethyl-4-[3-(6-methoxyquinolin-4-yl)propyl]piperdine and

[3R, 4R]-1-Heptyl-4-[3-(6-methoxyquinolin-4-yl)propyl]-3-(2-carbamoylethyl)piperidine;

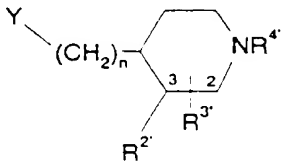
or a pharmaceutically acceptable derivative of any of the foregoing compounds.

13. A process for preparing a compound of formula (I), or a pharmaceutically acceptable derivative thereof, according to claim 2, 3 or 12 which process comprises:

(a) reacting a compound of formula (IV) with a compound of formula (V):



(IV)



(V)

wherein m, n, R^1, R^2, R^3 and R^4 are as defined in formula (I), and X and Y may be the following combinations:

(i) X is M and Y is $CH_2CO_2R^X$

(ii) X is CO_2R^Y and Y is $CH_2CO_2R^X$

(iii) one of X and Y is $CH=SPh_2$ and the other is CHO

(iv) X is CH_3 and Y is CHO

(v) X is CH_3 and Y is CO_2R^X

(vi) X is $CH_2CO_2R^Y$ and Y is CO_2R^X

(vii) X is $CH=PR^Z{}_3$ and Y is CHO

(viii) X is CHO and Y is $CH=PR^Z{}_3$

(ix) X is halogen and Y is $CH=CH_2$

(x) one of X and Y is COW and the other is $NHR^{11'}$ or NCO

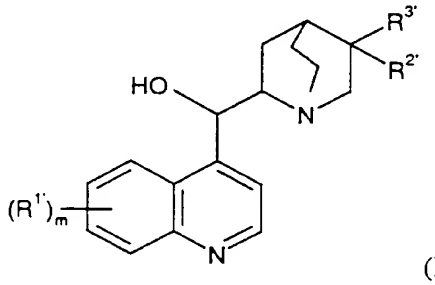
(xi) one of X and Y is $(CH_2)_p$-V and the other is $(CH_2)_qNHR^{11'}$, $(CH_2)_qOH$, $(CH_2)_qSH$ or $(CH_2)_qSCOR^X$ where p+q=1

(xii) one of X and Y is CHO and the other is $NHR^{11'}$

(xiii) one of X and Y is OH and the other is $-CH=N_2$

in which V and W are leaving groups, R^X and R^Y are (C_{1-6})alkyl and R^Z is aryl or (C_{1-6})alkyl;

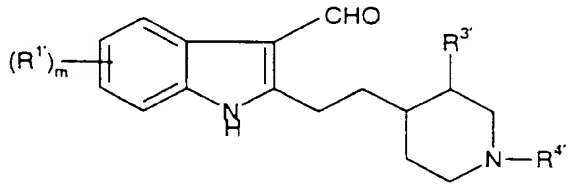
(b) rearranging a compound of formula (II):



(II)

to give a compound of formula (III) which is a compound of formula (I) where R^3 is in the 3-position, n is 1, A-B is $COCH_2$ or disubstituted epoxide and R^2 is H, and thereafter optionally reducing to a compound of formula (VII) which is a compound of formula (I) where n is 1, A-B is $CHOHCH_2$ or CH_2CHOH and R^2 is H;

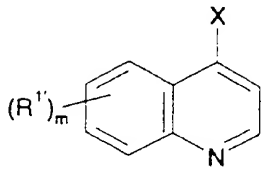
(c) photooxygenating a compound of formula (VI):



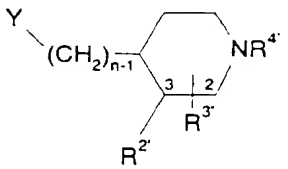
(VI)

or

(d) reacting a compound of formula (IV) with a compound of formula (Vb):



(IV)



(Vb)

wherein m, n, R^1, R^2, R^3 and R^4 are as defined in formula (I), X is $CH_2NHR^{11'}$ and Y is CHO or COW or X is CH_2OH and Y is $-CH=N_2$;

in which $R^{11'}$, $R^{1'}$, $R^{2'}$, $R^{3'}$ and $R^{4'}$ are R^{11}, R^1, R^2, R^3 and R^4 or groups convertible thereto, and thereafter optionally or as necessary converting $R^{11'}$, $R^{1'}$, $R^{2'}$, $R^{3'}$ and $R^{4'}$ to $R^{11'}$, R^1, R^2, R^3 and R^4, converting A-B to other A-B, interconverting R^{11}, R^1, R^2, R^3 and/or R^4 and forming a pharmaceutically acceptable derivative thereof.

14. A pharmaceutical composition comprising a compound according to claim 2, 3 or 12, and a pharmaceutically acceptable carrier.

15. The use of a compound of formula (I) or a pharmaceutically acceptable derivative thereof as defined in claim 1 in the manufacture of a medicament for use in the treatment of bacterial infections in mammals.

16. A pharmaceutical composition for use in the treatment of bacterial infections in mammals comprising a compound of formula (I), or a pharmaceutically acceptable derivative thereof as defined in claim 1, and a pharmaceutically acceptable carrier.